CLAIMS:

1. A device manufacturing method comprising the steps of:

(a) providing a polished silicon substrate having a background portion and one or more target portions, said background and target portions having Si-H bonds on the surface;

(b) irradiating said one or more target portions using a patterned beam of radiation and in the presence of oxygen to provide a layer of silicon oxide on said target portion(s);

(c) reacting at least a part of said background portion with a first composition comprising one or more compounds selected from 1-alkenes and 1-alkynes;

(d) removing said layer of silicon oxide from said target portion(s);

(e) reacting one or more target portions with a further composition comprising one or more compounds selected from 1-alkenes and 1-alkynes, to covalently attach said one or more compounds to said target portion(s).

2. A method according to claim 1, wherein step (e) comprises irradiating said one or more target portions in the presence of the further composition, using a patterned beam of radiation.

3. A method according to claim 1 or 2, which method further comprises repeating step (e) one or more times, each repetition being carried out at one or more different target portions and in the presence of a further composition comprising one or more compounds selected from 1-alkenes and 1-alkynes, each further composition being the same or different.

4. A device manufacturing method comprising the steps of:

(a1) providing a polished silicon substrate having a background portion and one or more target portions, said background and target portions having Si-H bonds on the surface;

(b1) reacting one or more target portions with a further composition comprising one or more compounds selected from 1-alkenes and 1-

alkynes, to covalently attach said one or more compounds to said target portion(s); and

(c1) reacting at least a part of said background portion with a first composition comprising one or more compounds selected from 1-alkenes and 1-alkynes.

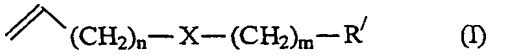
5. A method according to claim 4, wherein step (b1) comprises irradiating said one or more target portions in the presence of the further composition, using a patterned beam of radiation.

6. A method according to claim 4 or 5, which method further comprises repeating step (b1) one or more times, each repetition being carried out at one or more different target portions and in the presence of a further composition comprising one or more compounds selected from 1-alkenes and 1-alkynes, each further composition being the same or different.

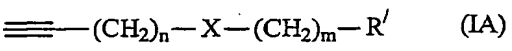
7. A method according to any one of the preceding claims, wherein one or more of the target portions has in its surface a part of a transistor structure.

8. A method according to claim 7, wherein said silicon substrate comprises 10 or more target portions, each having a part of a transistor structure in its surface.

9. A method according to any one of the preceding claims, wherein said first composition comprises one or more compounds of formula (I) or (IA):



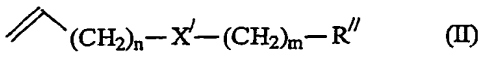
(I)



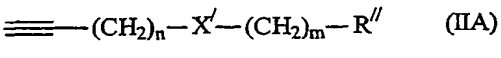
(IA)

wherein n and m independently represent an integer of from 1 to 36; X represents a single bond, -O-, -S-, -C(O)-O-, -O-C(O)- or an unsubstituted $C_2 - C_4$ alkenylene or alkynylene group containing one or two double and/or triple bonds; and R' represents hydrogen.

10. A method according to any one of the preceding claims, wherein the further composition comprises one or more compounds of formula (II) or (IIA):



(II)

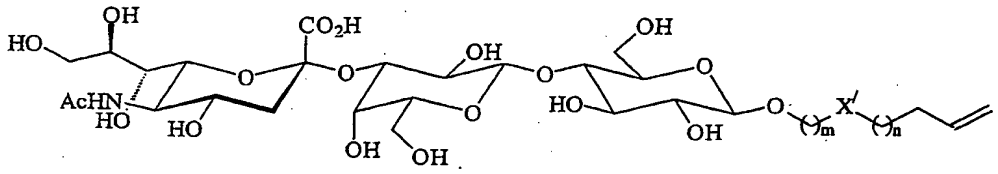


(IIA)

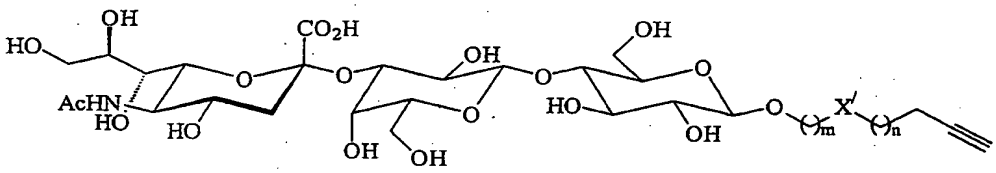
wherein n and m independently represent an integer of from 1 to 36; X' represents a single bond, -O-, -S-, -C(O)-O-, -O-C(O)- or an unsubstituted $C_2 - C_4$ alkenylene or alkynylene group containing one or two double and/or triple bonds; R'' represents hydrogen or a group selected from halogens, cyanide groups, carboxylic acid derivatives including esters and amides, alkoxy groups, thio groups, amines, including mono-and di-alkylamines, hydroxy groups and receptor derivatives which are capable of interacting with a chemical or biological substance.

11. A method according to claim 10, wherein R'' represents an oligosaccharide or an oligopeptide which is capable of interacting with a chemical or biological substance.

12. A method according to claim 11, wherein said further composition comprises a compound of formula (IIIA) or (IIIB):



(IIIA)



(IIIB)

which is optionally protected on the saccharide units with protecting groups, wherein n, m and X' are as defined in claim 10.

13. A device obtained or obtainable by the method of any one of the preceding claims.

14. A device comprising:

- a polished silicon substrate having a background portion and one or more target portions, at least one of said target portions having a part of a transistor structure in its surface;
- an organic monolayer which is directly coupled to at least a part of the surface of the silicon substrate by covalent bonds, said organic monolayer comprising receptor compounds, each of which is capable of interacting with a chemical or biological substance, in area(s) which cover the or each target portion having a part of a transistor structure;

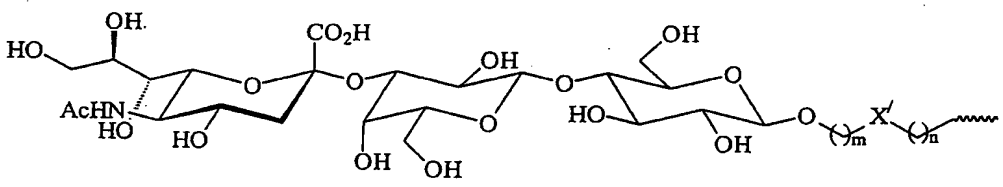
wherein the part of a transistor structure combined with the organic monolayer containing receptor compounds forms a field effect transistor.

15. A device according to claim 14, wherein said silicon substrate has 2 or more, preferably 10 or more, target portions.

16. A device according to claim 15, wherein the monolayer comprises receptor compounds of a first type in an area covering a first target portion, and receptor compounds of a different type in an area covering a second target portion.

17. A device according to any one of claims 14 to 16, wherein the monolayer in the area covering at least one target portion comprises one or more oligosaccharide or oligopeptide derivatives.

18. A device according to claim 17, wherein the monolayer in the area covering at least one target portion comprises an oligosaccharide derivative of formula (III)

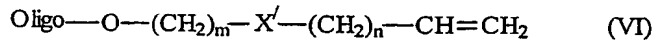


(III)

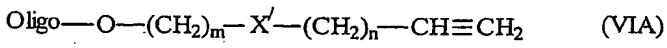
wherein n, m and X′ are as defined in claim 10.

19. Use of a device according to any one of claims 13 to 18 as a sensor.

20. A method of coupling an oligosaccharide or oligopeptide derivative to a polished silicon surface, which method comprises reacting a compound of formula (VI) or (VIA):



(VI)



(VIA)

wherein Oligo represents an oligosaccharide or oligopeptide derivative and n, m and X′ are as defined in claim 10, with a silicon substrate having Si-H bonds at its surface,

substantially in the absence of oxygen and in the presence of heat or UV or visible radiation.